

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
9 December 2004 (09.12.2004)

PCT

(10) International Publication Number  
**WO 2004/105922 A1**

(51) International Patent Classification<sup>7</sup>: **B01D 53/86,**  
53/14

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(21) International Application Number:  
PCT/EP2004/050955

(22) International Filing Date: 28 May 2004 (28.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
03253365.5 29 May 2003 (29.05.2003) EP

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(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

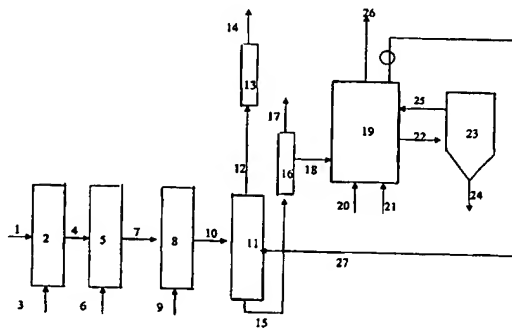
(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: A PROCESS FOR THE REMOVAL OF SO<sub>2</sub>, HCN AND H<sub>2</sub>S AND OPTIONALLY COS, CS<sub>2</sub> AND NH<sub>3</sub> FROM A  
GAS STREAM



(57) Abstract: The invention relates to a process for the removal of SO<sub>2</sub>, HCN and H<sub>2</sub>S and optionally one or more compounds from the group of COS, CS<sub>2</sub> and NH<sub>3</sub> from a first gas stream, which process comprises the steps of: (a) removing SO<sub>2</sub> from the first gas stream by contacting the first gas stream in a hydrogenation zone with a hydrogenation catalyst in the presence of hydrogen to obtain a second gas stream; (b) removing HCN and optionally COS and/or CS<sub>2</sub> from the second gas stream obtained in step (a) by contacting the second gas stream in a hydrolysis zone with a hydrolysis catalyst in the presence of water to obtain a third gas stream; (c) removing NH<sub>3</sub> from the third gas stream by contacting the third gas stream in a NH<sub>3</sub>-removal zone with an aqueous acidic washing liquid to obtain an ammonium-comprising aqueous stream and a fourth gas stream; (d) removing H<sub>2</sub>S from the fourth gas stream by contacting the fourth gas stream in a H<sub>2</sub>S-removal zone with an aqueous alkaline washing liquid to obtain a H<sub>2</sub>S-depleted gas stream and a hydrogensulphide-comprising aqueous stream; (e) contacting the hydrogensulphide-comprising aqueous stream obtained in step (d) with sulphide-oxidizing bacteria in the presence of oxygen in an oxidation reactor to obtain a sulphur slurry and a regenerated alkaline washing liquid; (f) separating at least part of the sulphur slurry obtained in step (e) from the regenerated aqueous alkaline washing liquid and; (g) recycling regenerated aqueous alkaline washing liquid obtained in step (e) to the H<sub>2</sub>S-removal zone in step (d).



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*